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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/796,655

03/09/2004

Hiroshi Horikoshi

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EXAMINER

PHAM, THANHHA S

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

2/c

Office Action Summary	Application No. 10/796,655	Applicant(s) HORIKOSHI, HIROSHI	
	Examiner Thanhha Pham	Art Unit 2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 8-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to Applicant's Election dated 12/08/2005.

Election/Restrictions

1. Applicant's election of claims 1-7 in the reply filed on December 08, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Oath/Declaration

2. Oath/Declaration filed on 03/09/2004 has been acknowledged.

Drawings

3. The drawings of figs 1A-1C are objected to under 37 CFR 1.83(a) because they fail to show the copper seed layer (124) as described in the specification of pages 21-22. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. Figures 9A-9J should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

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requested in correcting any errors of which applicant may become aware in the specification.

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

With respect to claim 1, lines 4-7, the phrase “forming a magnetoresistance effect type memory element which comprises a tunnel insulating layer disposed between a ferromagnetic material and which is electrically insulated from the first wiring” is not enabled since the device will not work when the memory element is electrically insulated from the first wiring.

For the purpose of examination, examiner assumes that the magnetoresistance effect type memory element is electrically connected to the first wiring.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

► With respect to claim 1,

line 3, the phrase "forming a first wiring" renders the claim indefinite. It is not clear where a first wiring is formed (for the purpose of examination, examiner assumes that the first wiring is formed on a substrate)

lines 17-18, the phrase "forming a soft magnetic material layer selectively only on a surface of the second wiring" renders the claim indefinite since the figure 1 shows that the soft magnetic material layer (122) is on sides and upper surfaces of the second wiring (12) (for the purpose of examination, examiner assumes that the soft magnetic material layer is formed on sides and upper surfaces of the second wiring)

► With respect to claim 6,

line 11-13, the phrase "forming the soft magnetic material layer selectively only on the surface of the second wiring while using said mask pattern as a mask" renders the claim indefinite since the figure 5 shows that the soft magnetic material layer (122) is on sides and upper surfaces of the second wiring (12).

► With respect to claim 7,

lines 13-15, the phrase “forming the soft magnetic material layer selectively only on the surface of the second wiring while using said mask pattern as a mask” renders the claim indefinite since the figure 5 shows that the soft magnetic material layer (122) is on sides and upper surfaces of the second wiring (12).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-4, as best understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Tuttle [US 2005/0051818].

► With respect to claim 1, Tuttle (figs 1-5, text [0001]-[0042]) discloses a method for manufacturing a magnetic memory device comprising the steps of:

forming a first wiring (10, fig 1, text [0024]-[0027]) on a substrate;

forming a magnetoresistance effect type memory element (24) which comprises a tunnel insulating layer (32) disposed between a ferromagnetic material (30 and 34) and which is electrically connected to the first wiring (10);

forming an insulating film (26/36, fig 1, text [0030]-[0031]) for covering the memory element; and

forming a second wiring (40, fig 3, text [0033]-[0034]) so that it is buried in the insulating film (36) wherein the second wiring is electrically connected to the memory element and spatially crosses the first wiring through the memory element disposed therebetween, wherein said method further comprises the steps of:

removing the insulating film (36) on a side portion of the second wiring (40) to expose the second wiring (fig. 4, text [0035]); and

forming a soft magnetic material layer (50, fig 5, text [0037]) selectively on sides and upper surfaces of the second wiring (40).

► With respect to claim 2, Tuttle (text [0028]-[0029]) discloses that the magnetic memory device is a nonvolatile magnetic memory device.

► With respect to claim 3, Tuttle (text [0038]) discloses that the soft magnetic material layer (50) is formed by an electroless plating process.


► With respect to claim 4, Tuttle (figs 3-4, text [0030]-[0031] & [0035]) discloses that the insulating film on the side portion of the second wiring (40) comprises an etching stopper layer (26) and an interlayer insulating layer (36) formed on the etching stopper layer; and etching is once stopped when removing said interlayer insulating layer at step for removing the insulating film on the side portion of the second wiring to expose the second wiring.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhha Pham whose telephone number is (571) 272-1696. The examiner can normally be reached on Monday and Thursday 9:00AM - 9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'Thanhha Pham', with a horizontal line drawn underneath it.

Thanhha Pham